AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in this application.

1. (currently amended) A method of producing a substrate for conducting epitaxial growth thereon, which comprises:

obtaining a substantially relaxed epitaxial base layer on an auxiliary substrate;

transferring at least a portion of the substantially-relaxed epitaxial base layer onto a carrier substrate to provide a base substrate; ~~and~~

increasing the thickness of the transferred epitaxial base layer portion transferred to the carrier substrate by epitaxial growth to form a further-grown epitaxial base layer thereon while maintaining a high degree of thermodynamic and crystallographic stability of the further-grown epitaxial base layer; and

transferring a portion of the further-grown epitaxial base layer from the carrier substrate to another substrate.

2. (previously presented) The method of claim 1, wherein the further-grown epitaxial base layer is made of a first material, and its thickness is about 0.1 μm to about 5 μm.

3. (previously presented) The method of claim 1, wherein the substantially-relaxed epitaxial base layer is lattice-mismatched with the auxiliary substrate.

4. (previously presented) The method of claim 1, wherein at least a portion of the substantially-relaxed epitaxial base layer is transferred to the carrier substrate by:

implanting atomic species in the epitaxial base layer to form weakened zone to define the portion to be transferred;

bonding the implanted epitaxial base layer with the carrier substrate; and

detaching the bonded portion of the epitaxial base layer at the weakened zone to transfer it to the carrier substrate.

5. (original) The method of claim 1, wherein the carrier substrate is made of silicon, silicon dioxide, fused silica, oxidised silicon, germanium, gallium nitride, indium phosphide, or gallium arsenide.

6. (previously presented) The method of claim 1, further comprising thermally treating the transferred portion of the epitaxial base layer prior to the further epitaxial growth thereon.

7. (previously presented) The method of claim 1, further comprising conducting an operation on a surface of the transferred portion of the epitaxial base layer for improving surface conditions of the transferred epitaxial base layer portion prior to the further epitaxial growth thereon.

8. (previously presented) The method of claim 1, wherein the epitaxial base layer portion that is transferred has a first dislocation density, and the epitaxial base layer that is further grown on the carrier substrate has a dislocation density that is lower than the first dislocation density.

9. (previously presented) The method of claim 1, wherein the transfer of the portion of the substantially-relaxed epitaxial base layer from the auxiliary substrate to the carrier substrate is conducted in a manner to provide a dislocation density in the transferred portion that is lower than that of the epitaxial base layer on the auxiliary substrate.

10. (original) The method of claim 1, wherein the further grown portion of the epitaxial base layer comprises silicon germanium.

11. (canceled)

12. (currently amended) The method of claim 1 ~~claim 11~~, which further comprises transferring one or more additional portions of the further-grown epitaxial base layer from the carrier substrate to one or more further substrates.

13. (previously presented) The method of claim 12, which further comprises at least one of re-claiming and planarizing the second portion.

14. (currently amended) A method of producing a substrate for conducting epitaxial growth thereon, which comprises:

obtaining a substantially relaxed epitaxial base layer on an auxiliary substrate;

transferring at least a portion of the substantially-relaxed epitaxial base layer onto a carrier substrate to provide a base substrate;

increasing the thickness of the transferred epitaxial base layer portion on the carrier substrate by epitaxial growth to form a further-grown epitaxial base layer thereon while maintaining a high degree of thermodynamic and crystallographic stability of the grown epitaxial base layer; ~~and~~

growing at least one second epitaxial layer on the further grown portion that is associated with the carrier substrate; and

transferring a combination of at least a portion of the epitaxial base layer together with at least a portion of the second epitaxial layer to another substrate.

15. (previously presented) The method of claim 14, wherein the at least one second epitaxial layer comprises silicon.

16. (original) The method of claim 14, wherein the at least one second epitaxial layer has a thickness of about 10 nm to about 20 nm.

17. (currently amended) A method of producing a substrate for conducting epitaxial growth thereon, which comprises:

obtaining a substantially relaxed epitaxial base layer on an auxiliary substrate;

transferring at least a portion of the substantially-relaxed epitaxial base layer onto a carrier substrate to provide a base substrate;

increasing the thickness of the transferred epitaxial base layer portion on the carrier substrate by epitaxial growth to form a further-grown epitaxial base layer thereon while maintaining a high degree of thermodynamic and crystallographic stability of the grown epitaxial base layer;

growing at least one second epitaxial layer on the further grown portion that is associated with the carrier substrate; ~~and~~

growing an additional epitaxial base layer of the same material as the transferred epitaxial base layer on the second epitaxial layer; and

transferring a combination of at least a portion of the additional epitaxial base layer together with at least a portion of the second epitaxial layer and together with at least a portion of the epitaxial base layer to another substrate.

18. (previously presented) The method of claim 17, wherein the second epitaxial layer is made of a different material from the transferred epitaxial base layer, and the additional epitaxial base layer is grown to provide a repeating structure with layers of materials arranged in an alternating sequence.

19. (canceled)

20. (original) The method of claim 19, further comprising finishing a surface of the transferred combination to enhance its surface properties.

21. (previously presented) The method of claim 10 wherein the substantially relaxed epitaxial base layer on the auxiliary substrate comprises silicon germanium.

22. (previously presented) The method of claim 14, which further comprises transferring a combination of at least a portion of the additional epitaxial base layer together with at least a portion of the second epitaxial layer to another substrate.

23. (canceled)